

# COLD ADHESIVES INCREASE BUR OPTIONS

By David A. Scheirer

**C**old application has provided an alternative to traditional hot asphalt applied built-up roofing (BUR) in the industry for more than 20 years. The term “cold-applied roofing system” means that the BUR roofing system is assembled using multiple plies of reinforcement applied with solvent-borne, bituminous (liq-

uid) adhesives instead of hot asphalt. In place of hot asphalt, “cold” asphalt adhesives are applied between reinforced base/ply sheets to provide a weatherproof membrane. In BUR cold process roof systems, manufacturers typically require that only fully-coated, non-porous felts such as standard base sheets be used as base and ply sheets. Generally, an aggregate surfacing or a coating is then applied over the completed membrane to provide protection and to provide a fire rating for the roof system.

## The Benefits of Cold Process Applications

In the last several years, the roofing industry has seen a trend toward an increased use of cold process roof systems. When asphalt fumes are a concern, contractors are turning to cold-applied, asphalt-based adhesives. This trend is being driven by the re-roofing market and the sensitivity sometimes present when installing hot asphalt roof systems. Since kettles are not required for cold process roof systems, building owners are able to execute roofing projects during the entire year in lieu of “summer-only” limitations.

The institutional market is taking advantage of the ease of set-up and staging required in the application of a cold process applied roof system. By using a cold process, there is less concern with the staging of equipment. In addition, fire safety, odor con-



Roofers using the “mop and flop” method with a BUR cold applied job.

trol, and limited staging areas are easier to control. Therefore, utilizing cold process applications provides a greater window of planning and executing projects. Cold-applied systems are able to overcome limitations often encountered with hot installations and provide an excellent alternative for building owners and specifiers who prefer BUR systems.

### How the System Works

Cold process BUR is available as complete systems or as repair systems for new construction or re-roofing, and they are available in a variety of constructions. Roofing manufacturers have developed adhesives that are effective with both insulation and roof membrane installations. Manufacturers have multiple cold process assemblies that have been tested and approved by Factory Mutual (FM) and Underwriters Laboratories (UL). Cold process adhesives with reduced solvents or volatile organic compound (VOC) contents also are available for use in areas that restrict VOC.

Cold process systems provide the same waterproofing protection as hot applied roof systems. An important difference is the set-up time for cold process. The ambient air temperature and humidity determine a cold process roof's "set-up" time. Normally,



*Roofers laying the cap sheet in cold adhesive using the mop and flop method.*

installations in colder ambient air and higher humidity climates require a longer "set-up" time than installations in drier and more arid climates. Most manufacturers have products specifically designed for either summer or winter use. As with all hot or cold

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**Brooming to ensure full adhesion of the BUR felt and respective plies.**

roof systems, precautions need to be taken until the roof system “sets up.” All types of roof traffic must be minimized or eliminated to avoid interply adhesive displacement.

## Installation

Several methods can be used in cold process roof installations. Adhesives can either be manually applied with a squeegee, or brush, or spray-applied using properly designed spray equipment. Installers should consult the manufacturer for recommended spray equipment. Proper coverage rates are vital to a successful, long-term, cold-applied roof system. Both methods require that the proper amount of adhesive material be installed. If too little adhesive is applied, there is a potential for an improper bond to be formed. If too much is applied, then the potential for longer set-up times and membrane displacement is increased.

Coverage rates are usually between 1.5 – 2.5 gallons per roofing square per individual membrane layer. The installer usually marks a roofing square out and pours the proper recommended amount of adhesive in the area to ensure proper application rates. This also allows familiarization with the required thickness of

the adhesive for recommended coverage rates. The installer needs to be aware that different substrate porosities will dictate the specific coverage rate quantities. Always be sure to consult the manufacturer for proper coverage rates and application requirements. The industry is also starting to introduce reusable 350-gallon totes as a container for the adhesive. Totes can be returned and reused, minimizing the use of valuable land-fill space and the disposal of hazardous material.

The techniques used in the application of cold systems are significantly different than those using hot asphalt. As a result, additional training is required. Also, it is important to be aware of the special precautions that must be taken when using industrial materials that contain solvents. To decrease cure time of the adhesives, specific manufacturer formulations will vary. Again, consult the manufacturer for guidelines for the proper and safe recommended installation process.

Cold process BUR systems now exist that use coated or uncoated polyester reinforcements, or composite (polyester/fiber-glass) reinforcements in conjunction with either solvent-borne or waterborne adhesives. The combination of reinforcement and adhesive is typically proprietary to the system provider, and compatibility should be verified with the manufacturer.



**Rofer using spray equipment for a cold application BUR system.**

BUR has been the most common low-sloped roofing system in the past, but cold-applied systems have begun and continue to claim a noticeable share of the BUR market. Cold-applied systems have proven repeatedly to be an effective and economical answer to solving the challenges associated with the installation of new roofing, as well as providing preventive maintenance and repair for existing roof surfaces.

In the future, we believe that there will be an increased demand for cold applied bituminous roofing. By combining the advantages of cold adhesives with the advantages of multiple plies of roofing membrane, the industry can offer systems with proven long-term performance that eliminate the dependence on heating asphalt and the use of an open flame propane torch. ■

## ABOUT THE AUTHOR

**David A. Scheirer** is manager of the JM Roofing Institute, an expanded educational initiative announced by the company in February 2003. In this capacity, Scheirer oversees the well-established Better Understanding of Roofing Systems Institute (BURSI) program as well as a program to provide training to roofing contractors, distributors, architects, and engineers, and JM technical and sales representatives. Scheirer joined JM in 1982 and has broad experience in all of the company's roofing products. He has served as a group manager in the Technical and Guarantee Services, as a market manager for each of the company's roofing membranes, and as a regional technical representative. Scheirer has a BS in civil engineering from Tri State University. He is a member of the Asphalt Roofing Manufacturers Association (ARMA), Single Ply Roofing Institute (SPRI), and an instructor for Roofing Industry Educational Institute (RIEI).



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## RCI TO OFFER PROGRAMS AT MRCA

The Roof Consultants Institute will offer special meetings and programming in conjunction with the Midwest Roofing Contractors Association's (MRCA) Annual Convention and Trade Show on October 23-24 in Cincinnati, Ohio. There will be a panel discussion program on various tentative topics, including:

- Reverse bidding on an Internet-based format for roofing projects;
- Public purchasing organizations that are purchasing roofing and roof consulting on a unit cost basis (AEPA);
- Shop drawings;
- Internet-based roof construction systems;
- Communication between project parties; and
- Proprietary specifications in public bidding.

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